TETON COUNTY
PLANNING & ZONING
NOV 07 2011
RECEIVED

CONDITIONAL USE PERMIT APPLICATION

Teton County, Idaho

The planning staff is available to discuss this application and answer questions. Once a complete application is received, it will be reviewed by the planning administrator or his designee and then scheduled for a public hearing with the Planning and Zoning Commission, who will make a recommendation to the Board of County Commissioners. A second public hearing will be scheduled with the Board of County Commissioners who will make the final decision. It is recommended that the applicant review Title 8 of the Teton County Code and 67-6512 of the Idaho Code. Application materials may be viewed on the Teton County Idaho website at www.tetoncountyidaho.gov.

SECTION I: PERSONAL AND PROPERTY RELATED DATA

Owner: WILLIAM W. BECKETT SR. & LINDA M BECKETT

Applicant: GRAND TETON VODKA INC E-mail: wbeckett2@tampabay.rr.com

Phone: (727) 504-9326 Mailing Address: (TEMP) 1635 Robin Hood LN

City: CLEARWATER State: FL Zip Code: 33764

Engineering Firm: JORGENSEN ASSOC Contact Person: _____ Phone: (208) 354-8330

Address: 105 E. LITTLE AV E-mail: _____
DRIGGS ID 83422

Location and Zoning District:

Address: 1755 HIGHWAY 33 NORTH Parcel Number: RP00074002010CA

Section: 23 Township: 5N Range: 45E Total Acreage: 3.3

Zoning District: DRIGGS CITY AREA OF IMPACT C-3 Requested Land Use: CONDITIONAL USE MICRO-DISTILLERY (BREWERY)

I, the undersigned, have reviewed the attached information and found it to be correct. I also understand that the items listed below are required for my application to be considered complete and for it to be scheduled on the agenda for the Board of County Commissioners public hearing.

- Applicant Signature: Kristen M Beckett Date: Nov 2, 2011

Fees are non-refundable.

I, the undersigned, am the owner of the referenced property and do hereby give my permission to RENE LASSER to be my agent and represent me in the matters of this application. I have read the attached information regarding the application and property and find it to be correct.

- Owner Signature: _____ Date: Nov 2, 2011

Linda M Beckett

SECTION I: REQUIRED ITEMS

1. Latest Recorded Deed to the Property
2. Affidavit of Legal Interest
3. ✓ Application fee paid in full in accordance with current fee schedule
4. Twelve (12) copies of information and data (pictures, diagrams, etc.) necessary to assure the fullest presentation of the facts for evaluation of the request.
5. Twelve (12) copies of a site plan drawn to scale.
6. Narrative explaining the following:
   - Location is compatible to other uses in the general neighborhood.
   - Use will not place undue burden on existing public services and facilities in the vicinity.
   - Site is large enough to accommodate that proposed use and other features of this ordinance.
   - Proposed use is in compliance with and supports the goals, policies, and objectives of the Comprehensive Plan

SECTION III: CRITERIA FOR RECOMMENDATIONS AND DECISIONS

1. Upon the granting of a conditional use permit, conditions may be attached to a conditional use permit including, but not limited to, those:
   - Minimizing adverse impact on other development;
   - Controlling the sequence and timing of development;
   - Controlling the duration of development;
   - Assuring that development is maintained properly;
   - Designating the exact location and nature of development;
   - Requiring the provision for on-site or off-site public facilities or services;
   - Requiring more restrictive standards than those generally required in this Title;
   - Designating the number of non-family employees in the home occupation and home business based on the type of business and the location;
   - Requiring mitigation of effects of the proposed development upon service delivery by any political subdivision, including school districts, providing services within the planning jurisdiction.
2. Prior to granting a conditional use permit, studies may be required of the social, economic, fiscal, and environmental effects of the proposed conditional use. A conditional use permit shall not be considered as establishing a binding precedent to grant other conditional use permits. A conditional use permit is not transferable from one (1) parcel of land to another.
3. Commercial Development Agreement for all land uses in the C-1, C-2, C-3, and M zoning designations are required to include the following, as applicable:
   - A site plan and/or survey prepared by a professional surveyor to include current and proposed plan;
   - A professionally prepared landscaping plan;
   - Financial guarantee for public improvements which may include but not be limited to: roads, phone, electric, water, sewer, fire protection, and lighting;
   - Professionally prepared final construction drawings.

NARRATIVE for approval request for a craft distillery (micro0distillery) in C-3 zoning.

This is an application for a Conditional Use Permit in a C-3 Zoning for a Micro-Brewery/Micro-Distillery and Bottling Plant. Micro-Brewery is a listed conditional use in C-3 zoning. The production processes of brewing and distilling are identical in all but one step and they are treated alike in other cities zoning definitions.

This location is north of Driggs in the Area of Impact Zone immediately adjacent to the city limits. In 2008, the entire 3.3 acre site went through both City of Driggs and Teton County planning and zoning and Board of Commissioners approvals for the entire site plan and landscaping plan and attained those approvals. This request is simply for the conditional use and to now build out one of the five warehouse/office units shown on the original approved site plan, specifically the first one in the Northeast corner of the site adjacent to Casper Drive.

There will be no adverse environmental impacts from this building or business. All activities and operations take place inside the building. No equipment will be operational outside the building. Any fumes produced from fermentation or distillation are inside closed containers. The vapors are captured by the equipment and put through a condenser and turned back to liquid, which is the product. Residual products from the cooking and fermentation of the potatoes are placed into containers and sold or provided as animal feed offsite.

The property is zoned C-3 permitting light industrial uses. It lies directly west of Burns Concrete which is zoned industrial. To the north and west of the property are roads; Casper Drive, a paved improved road to the North and Highway 33 North to the west. Beyond Casper Drive to the north is a vacant approximate 5 acre site. Beyond Highway 33 to the west is a trailer sales business who submitted his approval letter of the business at the City planning and zoning meeting in October, 2011. To the south is a vacant house on approx 5 acres owned by a non-resident of the Valley who has the property listed for sale as a potential business site. There will be no adverse effects on these property owners from this business use.

The total parcel, 3.3 acres, has city electric and city water at the SW property line. There is no sewer service to the site. The business will have only ½ bath for employee use and one extra sink. The processes of the business require relatively small amounts of utensil wash water and should be easily served by a normal house sized septic system until the sewer service is extended north. There is a functioning well on the property and it is preferable to use untreated water without chemicals for necessary product dilutions, so use of city water will not be necessary. There will be no additional needs for public facilities and services. There is already an existing improved road (Casper Drive) to the site. There are existing turn lanes north and south off Highway 33 onto Casper Drive. The fire department has decided that the site must have an additional fire hydrant (there is already one nearby on Burns Concrete property), so one will be installed at our expense.

While the total site has 3.3 acres, the area to be used for the distillery will be only 6000 square feet. This will easily accommodate the proposed use and provide all necessary room for further expansion of that use if necessary.

For the reasons stated above and as evident from the permitted and conditional uses in the C-3 zone, the proposed use is in compliance and supports the goals, policies and objectives of the Comprehensive Plan.

Main Identity

From: [redacted]
To: "Rene Lusser" [redacted]
Sent: Wednesday, December 14, 2011 11:25 AM
Attach: Idaho Dept of Water Resources.jpg; Fusel Alcohol (Wikipedia) Page 1 001.jpg; Fusel Alcohol (Wikipedia) Page 2.jpg
Subject: water and sewer issues

Rene

I searched and downloaded from the State of Idaho Department of Water Resources an application for permit to withdraw water from surface or ground water sources. In the first paragraph (I will scan it and send it to you) it says "The only water uses authorized to begin without a permit are: (1) use of ground water for singer ownership homes, campgrounds or stock watering up to 13,000 gallons per day (2) other uses of ground water up to 2500 gallons of water per day and 3) stockwater use where the animals drink directly from the water source. Under (2), since we are not using over 2500 gallons of water per day, we don't have to have a permit. In the sewer and ground water issues information paper I gave to the Health Dept., it clearly shows that we are a "producer" of water and not a net user. Since potatoes are 75% water and we are going to extract that water from about 2000 to 4000 lb of potatoes a week, we are going to produce all of the water needed to add to our cooking processes and will have about half of it as waste water. The only water use we will is what we add to our product. If we produce 100 cases per week, that is 1200 bottles or 240 gallons of product, half of which is well water. So, we will use about 120-150 gallons of well water per week. If we double or triple our production or even quadrouple it down the road.....we still won't use anywhere close to the specified amount of well water. The only other use is our small employee bathroom, which has one toilet, one sink, and a shower (in case an employee gets sticky with potatoes and needs to shower. We have one other sink in the bottling area. In that sink we will rinse bottles prior to filling. That is hard to estimate, but it is doubtful that a rinse per bottle would exceed the capacity of that bottle, so even at maximum you could double the 120-150 gallons of water per week for rinsing and still not touch the maximum allowed without permit.

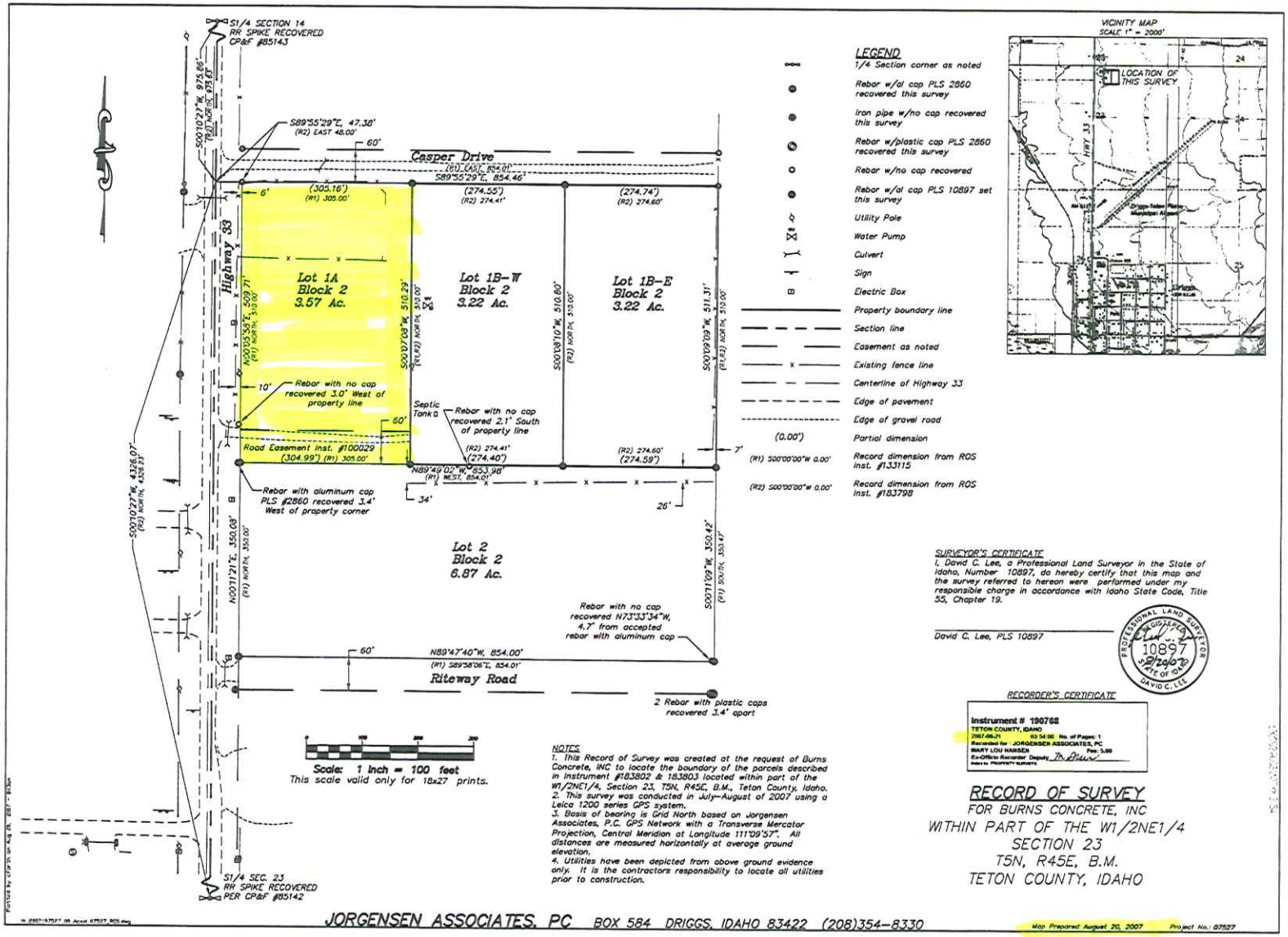
So, our concensus is that a permit from the DWR will not be necessary based on our usage of our well. Please copy this and give it to anyone who raises the issue.

Also, I am forwarding to you the emails from the various officials, stating that they feel they can give us a permit for a basic septic system for the employee bathroom. We will collect all waste water from our production processes and store it in an inside holding tank. After we begin production we will have the waste water analyzed and if it meets standards, we will make application to dispose of it in our septic system. If it needs treatment prior to disposal, we will do that. If it does not meet standards and cannot be treated to meet standards, we will haul it to a disposal site per the requirements.

I am also scanning in and showing some references which show that fusal oils (the only small amount contaminants of our processes after distillation that we would want to dispose of) are not harmful to human health. See Wikipedia "Fusel Alcohol"

Hope this answers those kinds of questions.

Lea



LEGEND

- 1/4 Section corner as noted
- Rebar w/al cap PLS 2860 recovered this survey
- Iron pipe w/no cap recovered this survey
- Rebar w/plastic cap PLS 2860 recovered this survey
- Rebar w/no cap recovered
- Rebar w/al cap PLS 10897 set this survey
- Utility Pole
- Water Pump
- Culvert
- Sign
- Electric Box
- Property boundary line
- Section line
- Easement as noted
- Existing fence line
- Centerline of Highway 33
- Edge of pavement
- Edge of gravel road
- (0.00') Partial dimension
- (M1) S00°00'00"W 0.00' Record dimension from ROS Inst. #133115
- (R2) S00°00'00"W 0.00' Record dimension from ROS Inst. #183798

VICINITY MAP
SCALE 1" = 2000'

NOTES:
1. This Record of Survey was created at the request of Burns Concrete, INC to locate the boundary of the parcels described in Instrument #183802 & 183803 located within part of the W1/2NE1/4, Section 23, T5N, R45E, B.M., Teton County, Idaho.
2. This survey was conducted in July-August of 2007 using a Leica 1200 series GPS system.
3. Basis of bearing is Grid North based on Jorgensen Associates, P.C. GPS Network with a Transverse Mercator Projection, Central Meridian at Longitude 111°09'57". All distances are measured horizontally at average ground elevation.
4. Utilities have been depicted from above ground evidence only. It is the contractors responsibility to locate all utilities prior to construction.

SURVEYOR'S CERTIFICATE
I, David C. Lee, a Professional Land Surveyor in the State of Idaho, Number 10897, do hereby certify that this map and the survey referred to hereon were performed under my responsible charge in accordance with Idaho State Code, Title 55, Chapter 19.

David C. Lee, PLS 10897

PROFESSIONAL LAND SURVEYOR
10897
8/20/07
STATE OF IDAHO
DAVID C. LEE

RECORDER'S CERTIFICATE

Instrument # 190762
TETON COUNTY, IDAHO
2007-08-21 03:34:00 No. of Pages: 1
Recorded for: JORGENSEN ASSOCIATES, PC
MARY LOU HANSEN Fee: 5.00
Ex-Officio Recorder Deputy

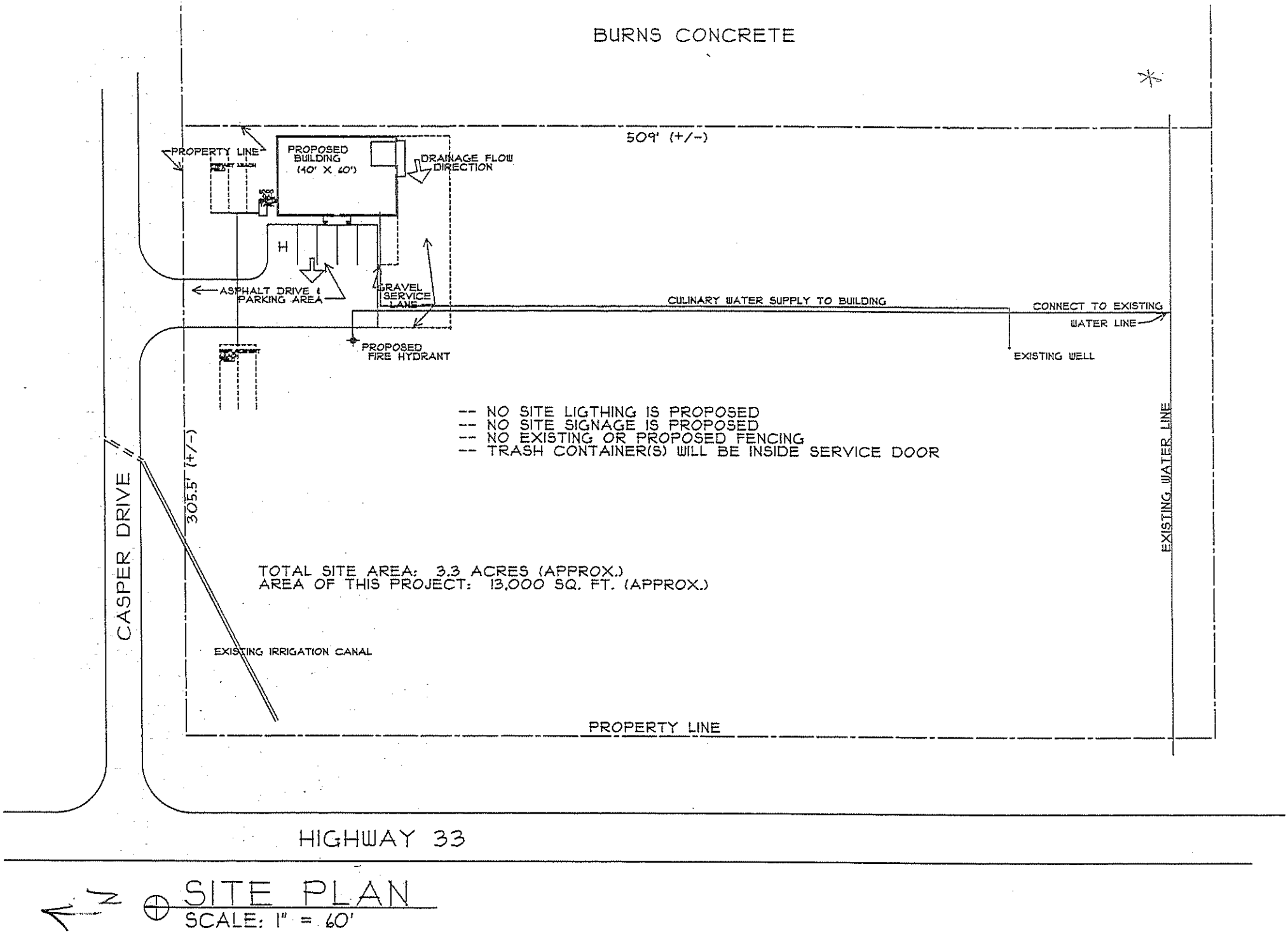
RECORD OF SURVEY

FOR BURNS CONCRETE, INC
WITHIN PART OF THE W1/2NE1/4
SECTION 23
T5N, R45E, B.M.
TETON COUNTY, IDAHO

JORGENSEN ASSOCIATES, PC BOX 584 DRIGGS, IDAHO 83422 (208)354-8330

Map Prepared: August 20, 2007 Project No.: 07527

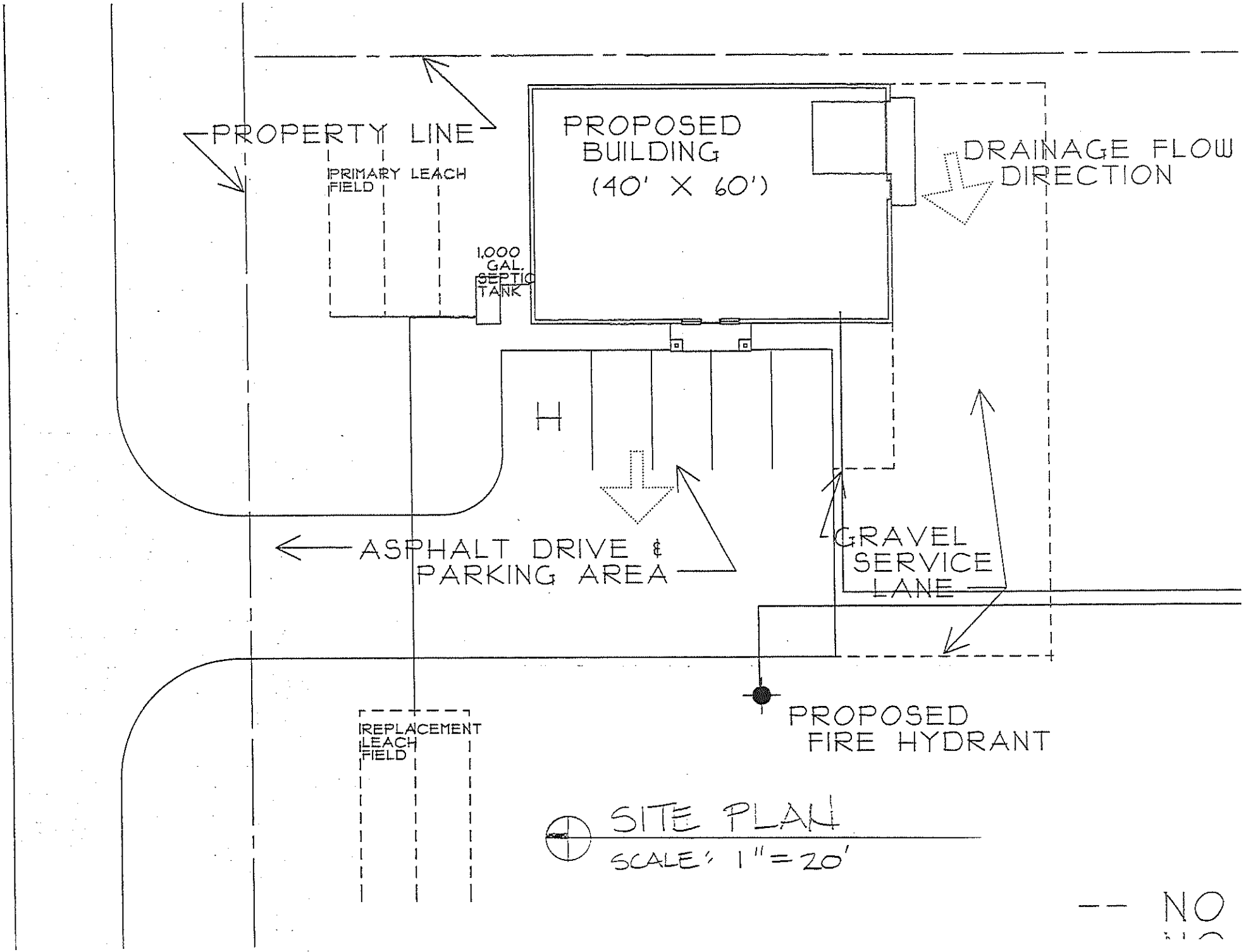
2007

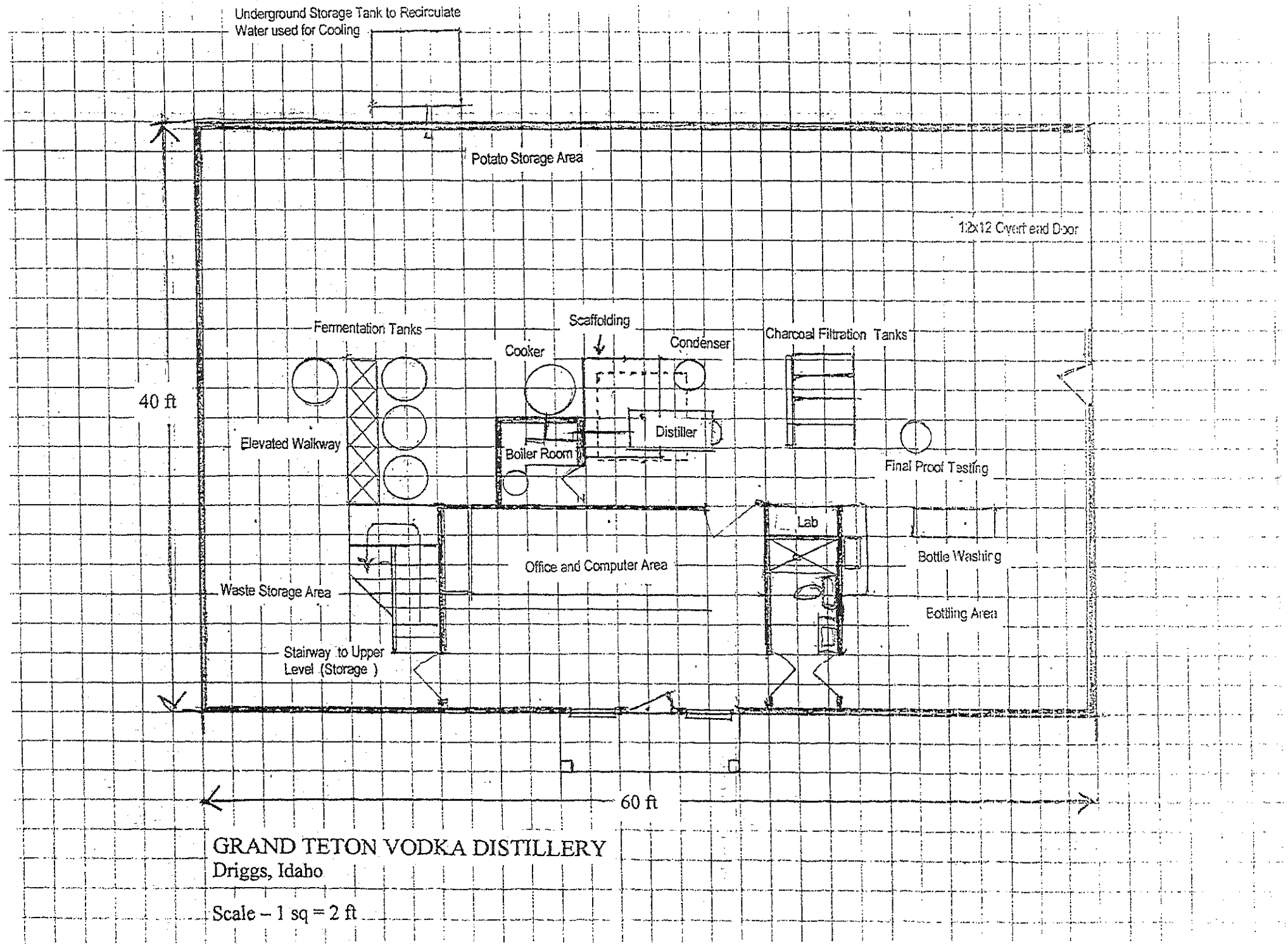


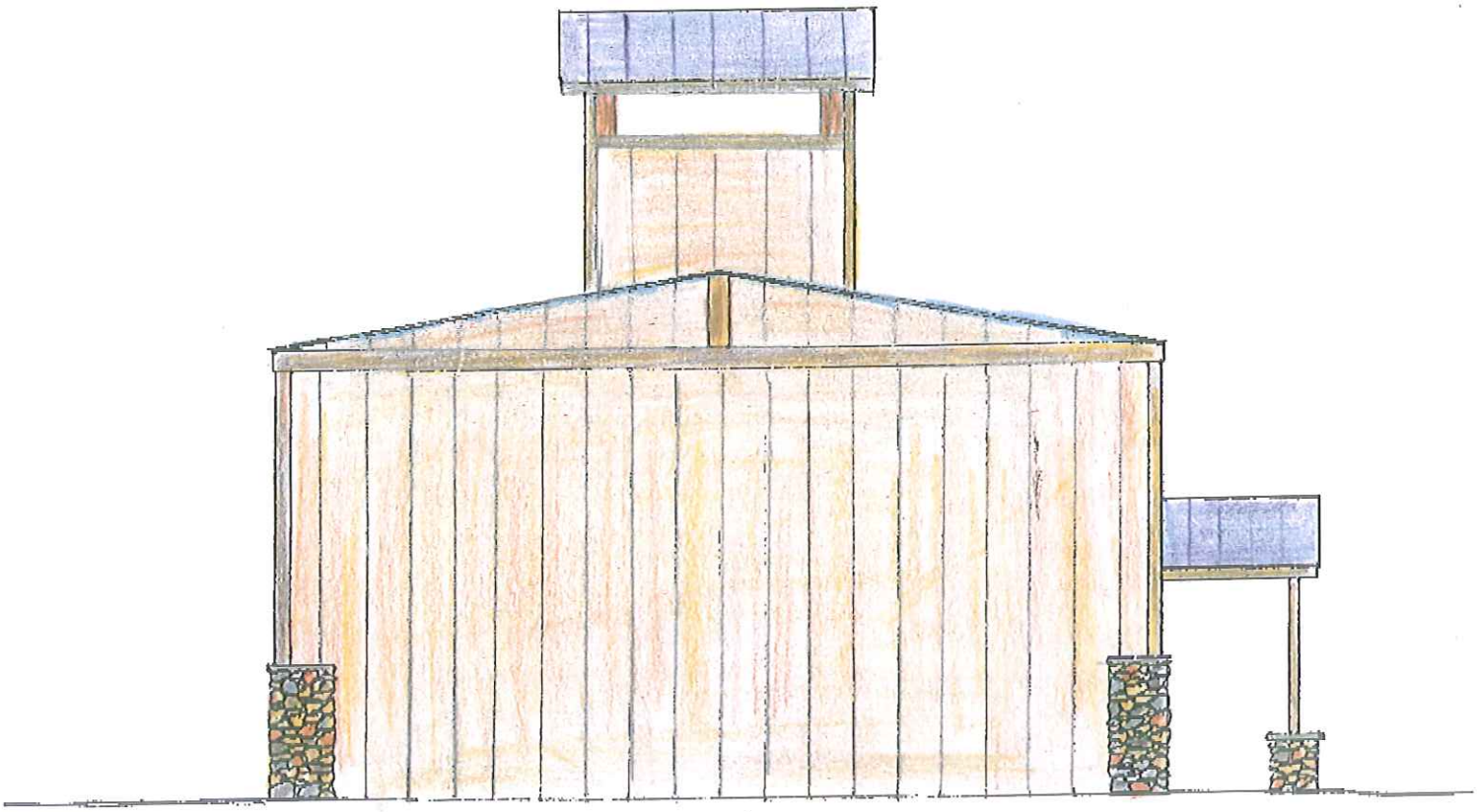
N

SITE PLAN

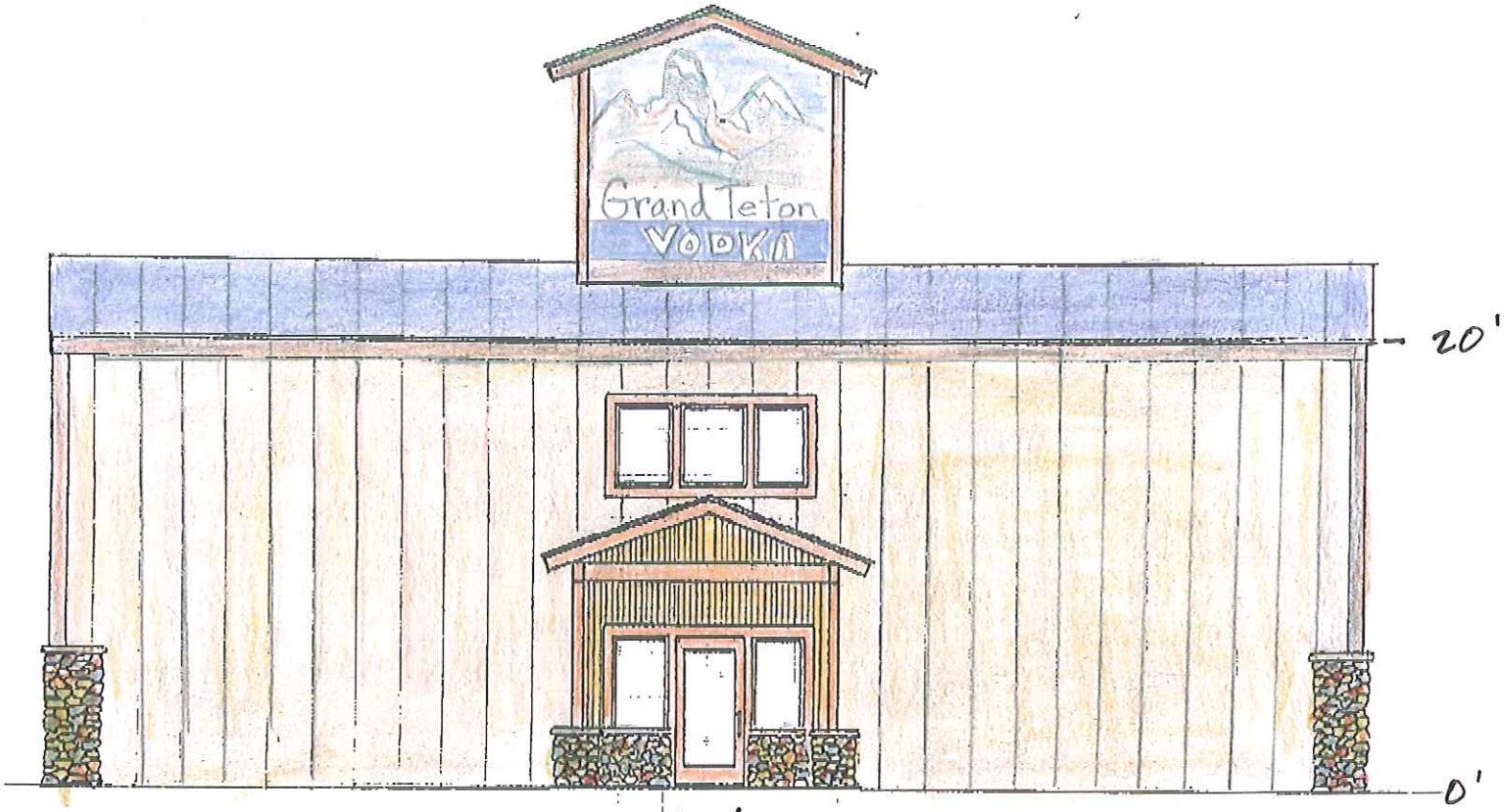
SCALE: 1" = 60'


PROPERTY LINE
PRIMARY LEACH FIELD
1,000 GAL. SEPTIC TANK
PROPOSED BUILDING (40' X 60')
DRAINAGE FLOW DIRECTION
H
ASPHALT DRIVE & PARKING AREA
GRAVEL SERVICE LANE
PROPOSED FIRE HYDRANT
REPLACEMENT LEACH FIELD
SITE PLAN
SCALE: 1" = 20'
NO

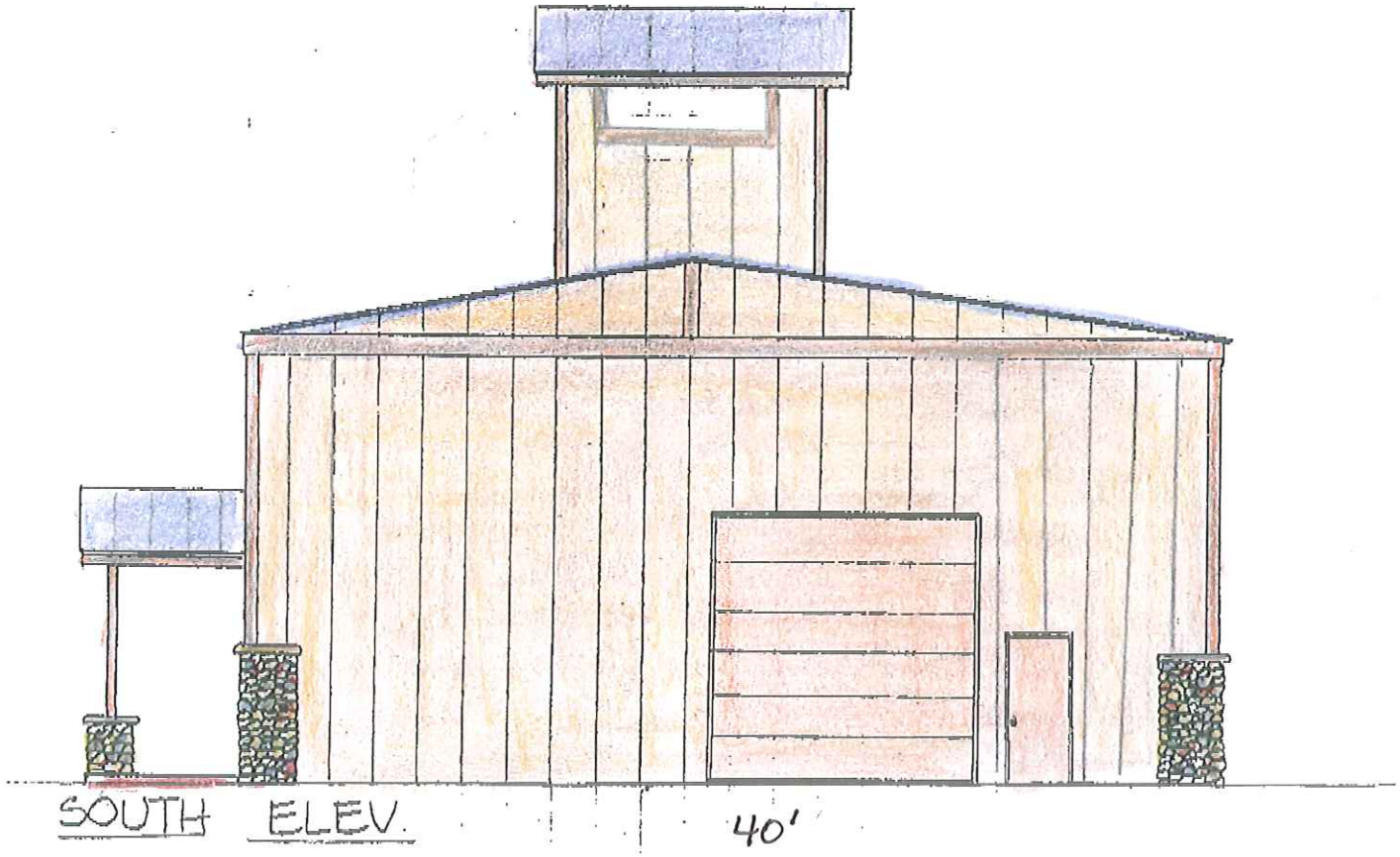

Underground Storage Tank to Recirculate Water used for Cooling
Potato Storage Area
12x12 Overhead Door
Fermentation Tanks
Scaffolding
Cooker
Condenser
Charcoal Filtration Tanks
40 ft
Elevated Walkway
Distiller
Boiler Room
Final Proof Testing
Lab
Office and Computer Area
Bottle Washing
Waste Storage Area
Bottling Area
Stairway to Upper Level (Storage)
60 ft
GRAND TETON VODKA DISTILLERY
Driggs, Idaho
Scale – 1 sq = 2 ft



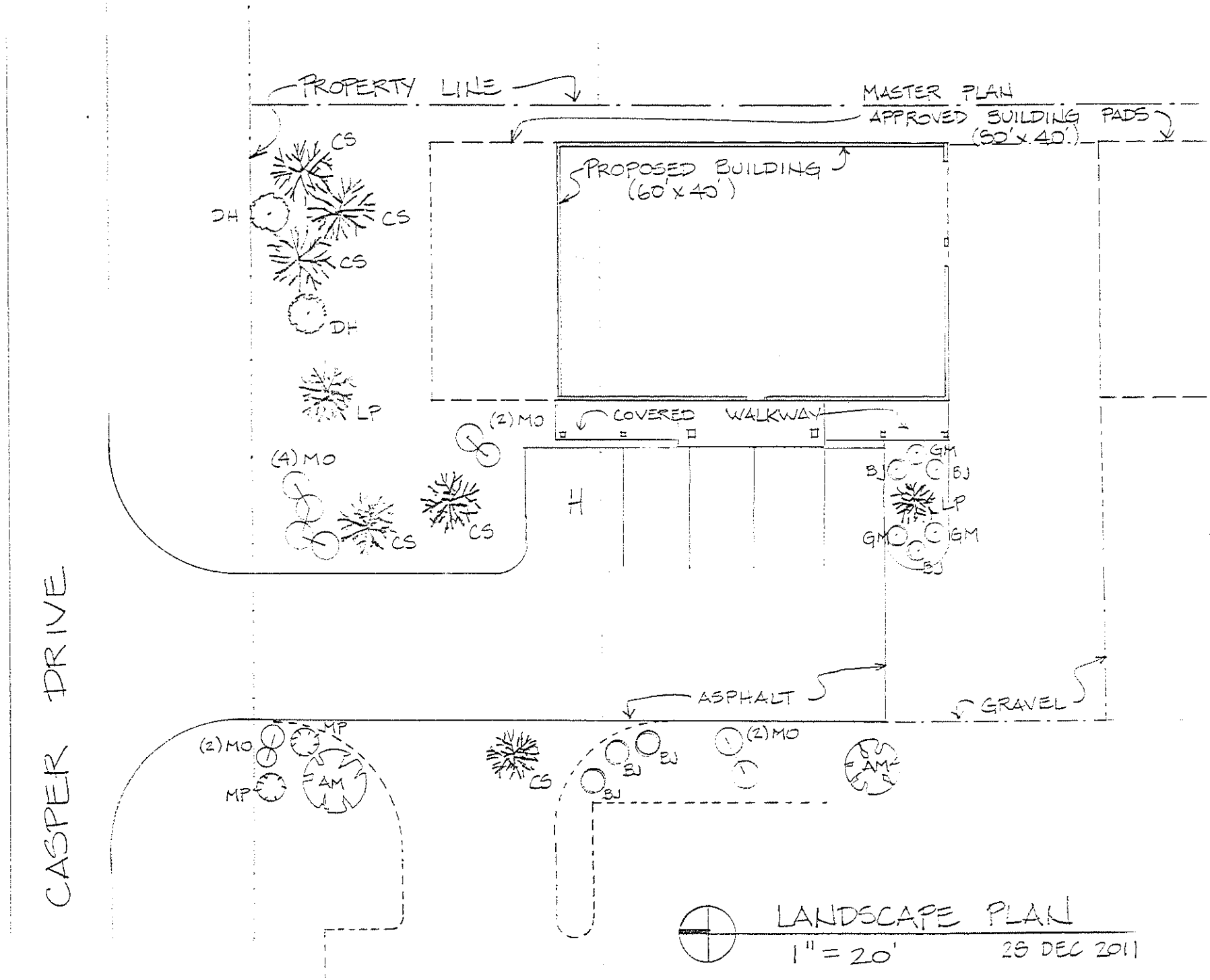
NORTH ELEV. 40'



WEST ELEV.



SOUTH ELEV.


PROPERTY LINE
MASTER PLAN
APPROVED BUILDING PADS
(50'x40')
PROPOSED BUILDING
(60'x40')
CS
DH
CS
CS
DH
LP
(2) MO
COVERED
WALKWAY
(4) MO
CS
CS
H
GM
BJ
BJ
LP
GM
GM
BJ
CASPER DRIVE
ASPHALT
GRAVEL
(2) MO
MP
MP
AM
CS
BJ
BJ
(2) MO
AM
LANDSCAPE PLAN
1" = 20'
28 DEC 2011

GRAND TETON VODKA

DRIGGS, IDAHO

LANDSCAPING LEGEND AND NOTES:

PLANT SCHEDULE –

Quantity	Symbol	Scientific Name	Common Name	Condition	Size
		Evergreen Trees			
6	CS	Picea pungens	Colorado Spruce	B & B	8-10' Tall
2	LP	Pinus flexis	Limber Pine	B & B	
		Deciduous Trees			
2	AM	Acer ginnala	Amur Maple	B & B	1.5 - 2" caliper
		Deciduous Shrubs			
2	DH	Crataegus douglasii	Douglas Hawthorne	5 Gallon container	
10	MO	Philadelphus "Blizzard"	Mockorange "Blizzard"	5 Gallon container	
3	GM	Ribes alpinum "Green Mound"	Green Mound Currant	5 Gallon container	
		Evergreen Shrubs			
6	BJ	Juniperus sabina "Buffalo"	Buffalo Juniper	5 Gallon container	
2	MP	Pinus mugo	Mugo Pine	10 Gallon container	

NOTES –

All areas to be reseeded with native grass seed unless noted otherwise
Irrigated turf grass mix (4 lbs./ 1000 SF)
- 35% Perennial Ryegrass
- 35% Creeping Red Fescue
- 30% Kentucky Bluegrass

Native grass mix (2 lbs. / 1000 SF)
- Low grow native seed mix

Provide 4" (min.) topsoil in all areas to be seeded to grass
Provide 3" bark mulch in all shrub areas
Provide automated irrigation system in all landscape areas
Provide drip irrigation system in all shrub beds
Provide spray irrigation system in all seeded areas

Distilling Procedure - With Regard to Production of Waste Wate

General: The distilling and the production of beer (breweries) processes are identical through fermentation. Breweries have much larger fermentation tanks, usually 1000 to 10,000 gallons. Craft distilleries have much smaller tanks, ours are 200 gallon tanks. They filter and add flavors to their fermentation and bottle it. A distillery takes the "beer" or "wash", puts it into a still, which is powered by a steam jacket or element and concentrates the alcohol. This is a closed system because any lost vapor is a loss of product and there are systems which prevent any loss of that vapor. The alcohol vapor is then condensed into liquid, which is then diluted to 40% with more water and bottled.

Specifically: Grand Teton Vodka is a small craft distillery that will use potatoes to make vodka. Our ingredients are raw potatoes, which will be shredded, water, and yeast (normal bakers yeast can be used, but a higher quality brewers yeast is better and will be used). Breweries and most distilleries use grain, usually rye, wheat, or barley and rarely oats. Grains have 11 – 12% cellulose (material that will not ferment easily), thus leaving more residue after processing. Potatoes have 1% cellulose (see attached chart), which means there will be less than $1/10^{th}$ the residue or waste from potatoes in our distillery as compared to any brewery or other distilleries that use grain.

Process: We grind 250 lb of potatoes and put them into a 800 liter (200 Gal) steam jacketed cooker with 50 Gal of hot water. After they are cooked, an enzyme alpha amylase is added to convert the liquid mash starch to sugars. The liquid is then pumped into a fermentation tank and cooled down. The cooker is then washed down with plain water with a pressure washer.

In the fermentation tank, yeast is added. Fermentation takes 3–4 days. After fermentation is complete, the liquid is pumped into the distiller. The fermentation tank is left open (a manhole opening) to cool and then any solids are removed from the cone bottom and stored (solids will be picked up by a local rancher for cattle feed) for disposal off-site. The walls of the fermentation tank are washed down with plain water using a pressure washer.

Distillation is a totally closed system with a condenser and is powered by steam pipe element going through the distiller from a steam boiler (a closed system). All of the distillate is collected. Most of the distillate is diluted with water to 40% alcohol (80 proof), and bottled and a small part, not tasty enough for drinking, is stored for pickup and use as an ethanol fuel or cleaner by others off-site. What remains in the still after distillation is hot water with about 1% alcohol remaining. This water is piped to the cooker as cooking liquid for the next batch of potatoes. Cooling water for the condenser is a closed loop with a pump to an underground storage water tank (that stores water at 50 deg F).

Conclusion: The only waste water from production methods that would be discharged as waste water is from washing out the cooker (potatoes and water

GRAND TETON VODKA, INC. - WATER & SEWER ISSUES

General: GTV is a small craft distillery, which will make only one product; vodka distilled from potatoes and will have production of less than 2500 cases per annum. It can't be compared to DSP's (Distilled Spirits Plants) like the one in Rigby because that plant is huge, producing thousands of gallons of spirits per week and selling it worldwide in bulk. Also, theirs is a continuous process, which in process and equipment is quite different. Ours is a small batch method. In addition, although they use some potatoes, they also produce ethanol from wheat and other grains. Until 7 or 8 years ago that plant was producing large amounts of ethanol for fuel additives. The ingredients of our processes are: (1) raw potatoes obtained directly from local wholesalers which are pre-washed, (2) filtered water to be obtained from an existing well on the property (3) alpha amylase, and (4) brewers yeast. Potatoes are 74-75% water by weight and only 1% cellulose or non-fermentable matter. Their starch content is variable by variety and time of year, 12 – 22%. The starch will be converted to sugars, which will then be fermented to ethanol and distilled to produce our product.

Processes: Production: For one batch (our production is one batch per day and a maximum of 4 batches per week (the limiting factor being the number of fermenters we have and that fermentation takes 3 -4 days per batch). We will grind ~400 lb potatoes and mix with 60 gal hot water (obtained from waste water from the previous distillation) in a large commercial cooker for one hour. This releases the starch in the potatoes. They are cooled and 1 cup of liquid alpha amylase enzyme is added to convert starch to sugars. After two hours of mixing, the mash is in liquid form. Tests are made for complete conversion of starch to sugar. The mixture is pumped over to the fermenter. Powdered brewers yeast is liquefied in a portion of the mash and then mashed in. Fermentation is kept stable at below 75 F. Fermentation takes 3 to 4 days. Tests are done to determine alcohol content of the mash and brix or sugar content to determine completion of fermentation. The liquid mash is filtered to remove solids and pumped over to the distiller which contains hot water which has been used to prime and saturate the still and column with water vapor. The liquid mash will contain 10 - 12% alcohol. Solids are removed from the fermenter and stored. (Solids will be packed in barrels and later picked up by a local rancher for cattle feed). The distiller will contain 500-600 Liters of liquid mash initially. The distiller and column with two condensers will be equilibrated and then liquid alcohol from the second condenser will be collected. The batch will yield ~90 Liters (25 Gal) of 90-95% alcohol. It will be collected in 3 parts, the "heads" (approximately 1 Liter), the "hearts" or portion of the alcohol we will dilute and later bottle, and the "tails" (approximately 10 liters). A portion of the "tails" will be added back and redistilled in the next batch. The "heads" could also be redistilled, but it can also be used as fuel for diesel motorized vehicles, lawn mowers, etc. It should be noted that "***All of the distilled material is drinkable and non-toxic to humans***".. Those distilleries that make bourbon or whiskey put the entire distillate into barrels and age it for two years. After two years in an oak barrel, the harsh tasting portions of the heads and tails have mellowed out and don't taste so bad. In a vodka, which we are making, we do not want those bad tasting portions in our product, so we either redistill them, filter them out with charcoal, or remove them and sell them to other users. There is, of course,

a market for this and it can be sold, for example in 5 gallon containers. What remains in the distiller after a batch is run is hot water, ~500 liters (130 Gal) which has approximately 0.5% alcohols (less than ½ Gal) remaining. It should be noted that this water has been held at boiling or near boiling temperatures for 4 hours or more. Approximately one-half of the hot water (60 gal) is pumped over to the cooker to start the next batch of potatoes cooking. The other half will be cooled and stored for another batch of cooking or discharged to a holding container as waste water. We have agreed with Idaho state officials to hold all process water in a large holding tank inside the building and to have it analyzed to determine if it is safe to discharge into a septic system. We are confident, based on simple chemistry, our methods, and consultation with other distilleries that we can meet that standard.

Bottling: The completed 25 Gal of 90-95% alcohol is diluted to 40% alcohol by adding filtered well water giving ~55 Gal of 40% alcohol final product. (Treated water from a city supply cannot be used unless it is treated to remove chlorine and other additives). It will then be pumped into freezers filled with activated charcoal and held at 30 deg F for several hours and filtered. It will then be bottled and sealed and packed in 6 and 12 bottle cases. Each batch should yield 20-23 cases of product. The cases are then put on pallets, shrink wrapped and transferred to the State dispensary for distribution and sale or picked up by a wholesaler for distribution out of state.

Water Usage: Note: These processes are a net ***"Producer"*** of water. Since potatoes are 75% water, there is a net production of water extracted from the raw product, about half of which will be reused in the cooking process. The distillery will run 5 days/week and will run 1 batch/day for a maximum of 4 days per week, the other day being used for bottling and cleaning..

(1) Water added to potatoes: 60 gal/batch – this water will be obtained from the water left in the distiller at the end of the distillation process. This water is obtained from the water content of the potatoes and will not be drawn from the well.

(2) Water to wash the cooker after each batch (using a pressure washer): 5 gal/batch., 20 gal/wk.

(3) Water to wash fermenter after each batch (using a pressure washer): 5 gal/batch, 20 gal/wk.

(4) Water added to dilute the alcohol from 95% to 40%: 25-30 gal/batch, 120 gal/wk.

(5) Cooling water for condensers: 600 gal one time only. Water will be stored in an underground water tank for ground sink cooling (45-50 deg F at 8 -10 feet depth) and re-circulated in a closed system to the condensers. Initially, 600 gal of water will be drawn from the well, filtered and stored in the underground tank for recirculation.

Waste Water Production: Waste water sources are:

(1) Water from washing the cooker after cooking potatoes and water and converting starch to sugar. Contents of the effluent are very scant residual clinging amounts of cooked potatoes, water, starch, sugars, and ~1% cellulose.. Est. water use is 5 gal in a pressure washer application or 20 gal/wk.

(2) Water from washing the fermenter after fermentation is complete and after mash water has been pumped to the distiller and the solids have been removed from the bottom cone to be stored and disposed off off-site. This water is estimated to be 5 gal in a pressure washer application and the effluent will have scant clinging solids of potato cellulose and clinging amounts of mash liquid, which is water and 10-12% alcohol. Residual alcohol content will be closer to 10%.and the amount will be ~0.20 Liter diluted in ~5 Gal of wash water. 20 gal/wk.

(3) Extra residual water from distiller operation after completion of distillation not transferred over to start a new batch: ~250 Liters (55 gal) This extra water extracted from potatoes (75% water by weight) which contains less than 0.5% residual alcohols will be waste water is 220 gal/wk.

Waste Solids: Since potatoes have only 1% cellulose by weight (compared with 10-12% cellulose in rye, wheat, corn, and barley), there is very little cellular organic solid waste residual after fermentation. Other waste after fermentation is spent yeast. The mixture of solid cellulose organics and spent yeast will be collected from the fermenter, stored in sealed barrels and transported off-site by a local rancher to mix with cattle feed.

Conclusions: These processes will use 100-120 gal/week of well water. We have agreed to place a meter on the well to prove these amounts.

These processes will produce 260 gal/week of waste water effluent. The effluent will contain very dilute amounts of alcohols, all of which are safe for human consumption. (See attached chart of distilled alcohols from potato by weight[1]). The effluent will contain scant rinsed residual cellulose remnants from potatoes and spent yeast from washing the fermenters. These are "beer" and also safe for human consumption and will cause no harm to ground water or the environment. Any of the scant amounts of residual alcohols in wash or process water are ***"drinkable"*** alcohols and are non-toxic to the environment.

These is one study that showed that the fusel alcohols, which are bad tasting and not-desirable for ethanol production for drinking, have an excellent use in agriculture. Fusel alcohols when sprayed on or added to soils which have a too high nitrogen content (dairies or beef cattle ranching) can fix that nitrogen and keep it from leeching into ground water, rivers and lakes, and making it available for plants. Thus, not only are fusel alcohols not bad for the environment, they are actually beneficial in areas with ranching or dairies….. i.e., Idaho.

[1] Simmonds, Charles, "Alcohol, its Production,Properties,Chemistry, and Industrial Applications", 2011, 1919, McMillan.